Massachusetts 2012 HAI Update

This document is designed to help you better understand the data presented on the Hospital Summary Pages that follow.

Standardized Infection Ratio (SIR): This measure indicates how the actual number of healthcare-associated infections at a location compares to the predicted number of infections at that location. If a hospital experiences the exact same number of infections as predicted, the SIR has a value of 1. If a hospital experiences more infections, the SIR is greater than 1, and vice versa. **Statistical significance** means that the number of infections observed was unlikely to have occurred by chance alone. A statistical interpretation of *Same* or *Lower* means that the number of infections was comparable or significantly better than expected, while an interpretation of *Higher* means that the number of infections was significantly worse than the expected.

Hospital Survey Statistics

These statistics aim to provide a broad sense of a hospital's patient care capacity and staffing. When reviewing this data, keep in mind that a single infection at a smaller hospital may have a greater impact on infection rates than at a larger hospital. Every hospital in Massachusetts has Infection Preventionists who work to reduce healthcare-associated infections at their hospital. The Society for Healthcare Epidemiology of America (SHEA) recommends that there be at least one Infection Preventionist per 125 beds at a hospital.

Influenza Vaccination

Hospitals are required to report their healthcare worker (HCW) influenza vaccination rate annually. **Individual hospital vaccination and declination rates for the 2011-2012 influenza season are compared to the state average.** Massachusetts has set a goal for acute care hospitals to have 90% of their HCWs receive the influenza vaccine each year. Vaccination rates include those vaccinated both within and outside of the hospital. It is possible that the vaccination and declination rates do not add up to 100% due to changes in personnel over the course of the vaccination campaign period.

Central Line-Associated Blood Stream Infection (CLABSI)

CLABSI data are reported by ICU type. The risk of infection can vary greatly from one ICU to another depending on the type of patients in the unit and the type of treatments received. In addition to adult and pediatric ICUs, 10 hospitals in the state have neonatal ICUs (NICUs).

The table included shows CLABSI data by ICU type. **Each location strives for zero infections.** The data presented in this table is from fiscal year (FY) 2012 (July 1, 2011 through June 30, 2012). The predicted number of infections is calculated by multiplying the state baseline infection rate from FY 2010 and 2011 by the number of device days. The SIR and confidence interval of ICUs with a predicted number of infections less than 0.5 have been suppressed (***).

The **central line utilization ratio** measures how often and for how long acute care patients have a central venous catheter in place. This statistic is important because **fewer central lines mean fewer chances for infection**. A downward trend may indicate that a hospital has implemented an intervention to reduce CLABSIs by removing central lines when not absolutely necessary. An upward trend does not necessarily indicate a change that is within the hospital's control. The state line represents central line utilization among comparable adult ICUs in the state.

The **Hospital and State CLABSI SIRs** chart shows how the hospital SIR and the state SIR have changed over time across all ICU types. The state line represents the SIR among comparable ICU types in the state. The SIRs in this chart use predicted values calculated by multiplying the average rate of infection for a given location from the 2010 national data by the number of device days, so they are different from the values found in the table above. **As CLABSIs are prevented, the SIR for a hospital should decrease**. Data validation efforts made in 2010 may have increased the values starting in that year.

Surgical Site Infection (SSI)

The risk for SSI varies by procedure type as well as individual patient and hospital factors. The CDC uses a formula that takes into account important risk factors to determine the predicted number of infections used to calculate the SIR. Infections following surgical procedures can take days to months to develop depending on patient factors and the procedure performed. Procedures that involve implantable devices or hardware are observed for infection for a full year. These procedures include CABG, HPRO, and KPRO procedures. Abdominal and vaginal hysterectomies are monitored for only 30 days following the procedure for infection. Due to these different follow up periods, the reporting for procedures with implants lags a year behind those without implants as their follow-up period is not complete.

The table titled **Hospital SSI SIRs by Procedure Type** contains hospital data for all years available for each procedure. **Each hospital strives for zero infections.** The SIR and confidence interval of procedures with a predicted number of infections less than 0.5 have been suppressed (***).

The chart included depicts SSI statistical interpretations over time. It is meant to be used as a quick assessment of significant variation of infection rates over time. This chart does not capture change in infection rates that were not statistically significant. The actual SIRs can be found in the table above.